UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,343	08/24/2006	Yasushi Maruta	20165	8411

23389 7590 11/13/2009

SCULLY SCOTT MURPHY & PRESSER, PC
400 GARDEN CITY PLAZA
SUITE 300
GARDEN CITY, NY 11530

EXAMINER	
BAIG, ADNAN	

ART UNIT	PAPER NUMBER
2461	

MAIL DATE	DELIVERY MODE
11/13/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,343	MARUTA ET AL.	
	Examiner	Art Unit	
	ADNAN BAIG	2461	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 30 June 2009.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-12 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-12 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura (US 2003/0058823) in view of Yoon et al. (US 2004/0203397) and further in view of Harrison et al. (USP 6,434,366).

Regarding Claim 1, Nishimura discloses A CDMA receiving apparatus characterized by comprising:

a radio reception unit (**see Fig. 3 & Para [0010-0013]**) which outputs a radio reception output (**see Fig. 2, Baseband Output**) for an uplink communication channel (**see Fig. 1, Uplink Signal Format & Para [0045]**) on which an individual channel (**see Fig. 1 i.e., DPCCH**) occupied by each user and a Data channel (**see Fig. 1 i.e., DPDCH**) are multiplexed on the basis of a CDMA scheme (**Referring to Fig. 3, Nishimura**

illustrates a Received Baseband Signal (radio reception output) received in a CDMA receiver of a base station, see Para [0002] & [0043] line 8-13)

by performing signal processing for a radio band signal received by a reception antenna, (**see Fig. 3 & Para [0043] i.e., processing is performed on the received baseband signal by demodulation on the basis of channel estimation)**

a channel estimation circuit (**see Fig. 3, Channel Estimator 23**) which receives a signal corresponding to an individual channel of an arbitrary user which is obtained by performing despreading operation (**see Fig. 3, Despreader 22**) for the radio reception output, and calculates a channel estimation value indicating phase and amplitude fluctuations due to a channel from phase/amplitude information after despreading of a known Pilot portion symbol, (**see Fig. 4 & Para [0047-0050]**)

a data channel demodulation circuit (**see Fig. 3, 24**) which demodulates a signal corresponding to the data channel of the user which is obtained by performing despreading operation (**see Fig. 3, Despreader 22**) for the radio reception output on the basis of the channel estimation value (**see Fig. 10 Steps S4-S5 & Para [0048]**)

Nishimura does not expressly disclose a shared channel among all users and a shared demodulation circuit which demodulates a signal corresponding to the shared channel

of the user, however the limitation is known in the art of communications by evidence of Yoon et al. (US 2004/0203397).

Referring to Fig. 2, Yoon illustrates a forward link channel 50 and reverse (i.e., uplink) link channel 52 between a radio base station 62 and mobile stations 14 for enabling precise power control. Each of the channels include both shared and dedicated (i.e., individual) channels, (**see Para [0030-0032]**)

Referring to Fig. 1, Yoon illustrates a CDMA network, with a forward and reverse link between Mobile Stations 14 and Radio Base stations 62, (**see Para [0027]**)

Yoon teaches that in the reverse link, mobile stations transmitting with excess power are unneccessarily wasting power at the mobile stations, (**see Para [0002]**)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include a radio reception unit which outputs a radio reception output for an uplink communication channel on which an individual channel occupied by each user and a shared channel among all users are multiplexed on the basis of a CDMA scheme, and a shared demodulation circuit which demodulates a signal corresponding to the

shared channel of the user, by including the teachings of Nishimura who discloses a radio reception unit which outputs a radio reception output for an uplink communication channel on which an individual channel occupied by each user and a data channel are multiplexed on the basis of a CDMA scheme, a channel estimation circuit which receives a signal corresponding to an individual channel of an arbitrary user which is obtained by performing despreading operation for the radio reception output, and calculates a channel estimation value indicating phase and amplitude fluctuations due to a channel from phase/amplitude information after despreading of a known Pilot portion symbol, a data channel demodulation circuit which demodulates a signal corresponding to the data channel of the user which is obtained by performing despreading operation for the radio reception output on the basis of the channel estimation value, within the teachings of Yoon who discloses individual and shared channels on the reverse link from a mobile terminal to a radio base station for enabling precise power control, because the teaching lies in Yoon to prevent mobile stations from wasting unnecessary power in the reverse link.

The combination of Nishimura in view of Yoon do not expressly disclose a channel estimation value correction circuit which corrects the channel estimation value from said channel estimation circuit on the basis of a reception power fluctuation due to uplink transmission power control which is caused by a timing offset between the individual channel of the user and the shared channel, and a shared demodulation circuit which demodulates a signal corresponding to the shared channel of the user which is obtained

by performing dispreading for the radio reception output on the basis of the corrected channel estimation value, however the limitation is known in the art of communications by evidence of Harrison et al. (USP 6,434,366).

Harrison discloses a channel estimation value correction circuit (**see Fig. 9, 602**) which corrects the channel estimation value from said channel estimation circuit (**see Fig. 9, 204**) on the basis of a reception power fluctuation due to uplink transmission power control which is caused by a timing offset between the individual channel (**see Fig. 9, 706**) of the user and the traffic channel (**see Fig. 9, 704**)

Referring to Fig. 9, Harrison illustrates a pilot channel 706 and traffic channel 704 which each compute their power over the duration of a slot in reference to dedicated pilot receiver 708, (**see Col. 13 lines 42-50 & Col. 14 lines 3-10**). A synthesized pilot is produced (*i.e., corrected channel estimation value*) where the final weight selection is made based upon information concerning distance ratios from distance processor 716 and delayed requested weights the receiver has requested the transmitter to use. The requested weights are delayed for synchronizing a slot (*i.e., timing offset between both channels*) in which they were requested with a slot in which they were used by the transmitter. The synthesized pilot is demodulated in symbol demodulator 216, (**see Col. 13 line 23 - Col. 14 lines 1-41**).

Harrison teaches in prior art proposals proper coherent demodulation requires a pilot that is in phase with the traffic channel. In order to demodulate a signal transmitted from an adaptive antenna array without a high power per user pilot, a pilot must be created, or synthesized in the receiver to provide a phase reference for the demodulator, (**see Col. 1 line 44 – Col. 2 lines 1-19**)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention for the receiver to include a channel estimation value correction circuit which corrects the channel estimation value from said channel estimation circuit on the basis of a reception power fluctuation due to uplink transmission power control which is caused by a timing offset between the individual channel of the user and the shared channel and use the data demodulation circuit as a shared demodulation circuit which demodulates a signal corresponding to the shared channel of the user which is obtained by performing dispreading operation for the radio reception output on the basis of the channel estimation value corrected by said channel estimation value correction circuit by including the teachings of Harrison who discloses a channel estimation value correction circuit which corrects the channel estimation value from said channel estimation circuit on the basis of a reception power fluctuation due to uplink transmission power control which is caused by a timing offset between the traffic channel of the user and the pilot channel and demodulates the synthesized pilot symbol, within the teachings of Nishimura in view of Yoon, because the teaching lies in Harrison to produce a synthesized pilot for coherent demodulation.

Regarding Claim 2, the combination of Nishimura in view of Yoon, and further in view of Harrison disclose a CDMA receiving apparatus according to claim 1, characterized by further comprising a reception power difference correction coefficient calculation circuit (**Harrison, see Fig. 9, 710**) which receives timing offset information (**Harrison, see Col. 14 lines 32-41**) of the user and uplink transmission power control command information (**Harrison, see Col. 14 lines 1-10**), and calculates a reception power difference correction coefficient, which corrects a reception power fluctuation, by estimating a reception power fluctuation corresponding to an uplink power control command in a timing offset interval, (**Harrison, see Col. 13 line 58 – Col. 14 lines 1-41 i.e., delayed requested weights (power difference correction coefficient)**)

wherein said channel value correction circuit (**Harrison, see Fig. 9, 602**) corrects a channel estimation value from said channel estimation circuit (**Nishimura, see Fig. 3, Channel Estimator 23**) on the basis of a reception power difference correction coefficient from said reception power difference correction coefficient calculation circuit, (**Harrison, see Col. 13 line 23 - Col. 14 lines 1-41**).

Regarding Claim 3, the combination of Nishimura in view of Yoon, and further in view of Harrison disclose a CDMA receiving apparatus according to claim 1, characterized in that said channel estimation value correction circuit corrects a plurality of channel estimation values before and after the timing which are obtained by said channel

estimation circuit on the basis of the reception power fluctuation, (**Harrison, see Col. 14 lines 32-41**) and then outputs the channel estimation values after correction upon performing averaged weighting thereof, (**Harrison, see Col. 12 lines 39-48**)

Regarding Claim 4, the combination of Nishimura in view of Yoon, and further in view of Harrison disclose A CDMA receiving apparatus according to claim 1 characterized by further comprising

a path detection circuit which detects path delays (**Nishimura, see Fig. 3, Searcher 1 & Selector 21**) associated with an individual channel and shared channel (**Yoon, see Para [0030-0032])** of the user from the radio reception output, (**Nishimura, see Fig. 3 Para [0047-0048]**)

an individual channel despreading circuit which outputs a signal corresponding to the individual channel of the user by performing despreading operation for the radio reception output on the basis of the path delay of the individual channel of the user, (**Nishimura, see Fig. 3, Despreader 22 & Para [0048]**)

a shared channel despreading circuit (**Yoon, see Fig. 4, 92**) which outputs a signal corresponding to the shared channel of the user by performing despreading operation for the radio reception output on the basis of the path delay of the shared channel of the user, (**Yoon, see Para [0036] & Nishimura, see Fig. 3 Despreader 22 i.e., despread for DPDCH & Para [0048]**)

Regarding Claim 5, the combination of Nishimura in view of Yoon, and further in view of Harrison disclose a CDMA receiving apparatus according to claim 4, characterized by further comprising an individual channel demodulation circuit which demodulates a Data portion of the individual channel of the user from the signal corresponding to the individual channel on the basis of the channel estimation value, (**Nishimura, see Fig. 3, 24 & Para [0048]**)

Regarding Claim 6, the combination of Nishimura in view of Yoon, and further in view of Harrison disclose A CDMA receiving apparatus according to claim 5, characterized by further comprising

an individual channel path demodulation unit, for each individual channel of the user, which comprises said individual channel despreading circuit, said channel estimation circuit, and said individual channel demodulation circuit, (**Nishimura, see Fig. 3 & Para [0047-0048]**)

an individual channel RAKE combining circuit (**Nishimura, see Fig. 3, Rake 25**) which outputs an individual channel demodulation result on the user which is obtained by RAKE combining demodulation outputs from said individual channel demodulation

circuits of said individual channel path demodulation units, (**Nishimura, see Para [0048] & [0054]**)

a shared channel demodulation unit, for each shared channel of the user, which comprises said shared channel despreading circuit, said channel estimation value correction circuit, and said shared channel demodulation circuit, (**Yoon, see Para [0030-0032] & Nishimura, see Fig. 3 & Para [0047-0048]**)

a shared channel RAKE combining circuit (**Nishimura, see Fig. 3, Rake 25**) which outputs a shared channel demodulation result on the user which is obtained by RAKE combining demodulation outputs from said shared channel demodulation circuits of said shared channel path demodulation units. (**Yoon, see Para [0030-0032] & Nishimura, see Fig. 3 & Para [0047-0048]**)

Regarding Claim 7, Nishimura discloses a CDMA receiving method characterized by comprising:

the radio reception step (**see Fig. 3 & Para [0010-0013]**) of outputting a radio reception output (**see Fig. 2, Baseband Output**) for an uplink communication channel (**see Fig. 1, Uplink Signal Format & Para [0045]**) on which an individual channel (**see Fig. 1 i.e., DPCCH**) occupied by each user and a data channel (**see Fig. 1 i.e., DPDCH**) are

multiplexed on the basis of a CDMA scheme, (**Referring to Fig. 3, Nishimura illustrates a Received Baseband Signal (radio reception output) received in a CDMA receiver of a base station, see Para [0002] & [0043] line 8-13**)

by performing signal processing for a radio band signal received by a reception antenna, (**see Fig. 3 & Para [0043] i.e., processing is performed on the received baseband signal by demodulation on the basis of channel estimation)**

the channel estimation step (**see Fig. 3, Channel Estimator 23**) of receiving a signal corresponding to an individual channel of an arbitrary user which is obtained by performing despreading operation (**see Fig. 3, Despreader 22**) for the radio reception output, and calculating a channel estimation value indicating phase and amplitude fluctuations due to a channel from phase/amplitude information after despreading of a known Pilot portion symbol, (**see Fig. 4 & Para [0047-0050]**)

the data channel demodulation step (**see Fig. 3, 24**) of demodulating a signal corresponding to the data channel of the user which is obtained by performing despreading operation (**see Fig. 3, 22**) for the radio reception output on the basis of the channel estimation value corrected in the channel estimation value correction step, (**see Fig. 10 Steps S4-S5 & Para [0048]**)

Nishimura does not expressly disclose a shared channel among all users and a shared demodulation step of demodulating a signal corresponding to the shared channel of the user, however the limitation is known in the art of communications by evidence of Yoon et al. (US 2004/0203397).

Referring to Fig. 2, Yoon illustrates a forward link channel 50 and reverse (i.e., uplink) link channel 52 between a radio base station 62 and mobile stations 14 for enabling precise power control. Each of the channels include both shared and dedicated (i.e., individual) channels, (**see Para [0030-0032]**)

Referring to Fig. 1, Yoon illustrates a CDMA network, with a forward and reverse link between Mobile Stations 14 and Radio Base stations 62, (**see Para [0027]**)

Yoon teaches that in the reverse link, mobile stations transmitting with excess power are unneccessarily wasting power at the mobile stations, (**see Para [0002]**)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include a radio reception step of outputting a radio reception output for an

uplink communication channel on which an individual channel occupied by each user and a shared channel among all users are multiplexed on the basis of a CDMA scheme, and a shared demodulation step of demodulating a signal corresponding to the shared channel of the user, by including the teachings of Nishimura who discloses a radio reception step of outputting a radio reception output for an uplink communication channel on which an individual channel occupied by each user and a data channel are multiplexed on the basis of a CDMA scheme, a channel estimation step of receiving a signal corresponding to an individual channel of an arbitrary user which is obtained by performing despreading operation for the radio reception output, and calculating a channel estimation value indicating phase and amplitude fluctuations due to a channel from phase/amplitude information after despreading of a known Pilot portion symbol, a data channel demodulation step of demodulating a signal corresponding to the data channel of the user which is obtained by performing despreading operation for the radio reception output on the basis of the channel estimation value, within the teachings of Yoon who discloses individual and shared channels on the reverse link from a mobile terminal to a radio base station for enabling precise power control, because the teaching lies in Yoon to prevent mobile stations from wasting unnecessary power in the reverse link.

The combination of Nishimura in view of Yoon do not expressly disclose a channel estimation value correction step of correcting the channel estimation value calculated on the basis of a reception power fluctuation due to uplink transmission power control

which is caused by a timing offset between the individual channel of the user and the shared channel, and a shared demodulation circuit which demodulates a signal corresponding to the shared channel of the user which is obtained by performing dispreading for the radio reception output on the basis of the corrected channel estimation value, however the limitation is known in the art of communications by evidence of Harrison et al. (USP 6,434,366).

Harrison discloses a channel estimation value correction step (**see Fig. 9, 602**) of correcting the channel estimation value calculated on the basis of a reception power fluctuation due to uplink transmission power control which is caused by a timing offset between the individual channel (**see Fig. 9, 706**) of the user and the traffic channel (**see Fig. 9, 704**)

Referring to Fig. 9, Harrison illustrates a pilot channel 706 and traffic channel 704 which each compute their power over the duration of a slot in reference to dedicated pilot receiver 708, (**see Col. 13 lines 42-50 & Col. 14 lines 3-10**). A synthesized pilot is produced (*i.e., corrected channel estimation value*) where the final weight selection is made based upon information concerning distance ratios from distance processor 716 and delayed requested weights the receiver has requested the transmitter to use. The requested weights are delayed for synchronizing a slot (*i.e., timing offset between both channels*) in which they were requested with a slot in which they were used by the

transmitter. The synthesized pilot is demodulated in symbol demodulator 216, (**see Col. 13 line 23 - Col. 14 lines 1-41**).

Harrison teaches in prior art proposals proper coherent demodulation requires a pilot that is in phase with the traffic channel. In order to demodulate a signal transmitted from an adaptive antenna array without a high power per user pilot, a pilot must be created, or synthesized in the receiver to provide a phase reference for the demodulator, (**see Col. 1 line 44 – Col. 2 lines 1-19**)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention for the receiver to include a channel estimation value correction step of correcting the channel estimation value calculated on the basis of a reception power fluctuation due to uplink transmission power control which is caused by a timing offset between the individual channel of the user and the shared channel, and use the data demodulation step as a shared demodulation step which demodulates a signal corresponding to the shared channel of the user which is obtained by performing despreading operation for the radio reception output on the basis of the channel estimation value corrected in the channel estimation value corrected step by including the teachings of Harrison who discloses a channel estimation value correction step of correcting the channel estimation value calculated on the basis of a reception power fluctuation due to uplink transmission power control which is caused by a timing offset

between the traffic channel of the user and the pilot channel and demodulates the synthesized pilot symbol, within the teachings of Nishimura in view of Yoon, because the teaching lies in Harrison to produce a synthesized pilot for coherent demodulation.

Regarding Claim 8, the combination of Nishimura in view of Yoon, and further in view of Harrison disclose a CDMA receiving method according to claim 7, characterized by further comprising the reception power difference correction coefficient calculation step (**Harrison, see Fig. 9, 710**) of receiving timing offset information (**Harrison, see Col. 14 lines 32-41**) of the user and uplink transmission power control command information (**Harrison, see Col. 14 lines 1-10**), and calculating a reception power difference correction coefficient, which corrects a reception power fluctuation, by estimating a reception power fluctuation corresponding to an uplink power control command in a timing offset interval, (**Harrison, see Col. 13 line 58 – Col. 14 lines 1-41 i.e., delayed requested weights (power difference correction coefficient)**)

wherein the channel value correction step (**Harrison, see Fig. 9, 602**) comprises the step of correcting a calculated channel estimation value (**Nishimura, see Fig. 3, Channel Estimator 23**) on the basis of a calculated reception power difference correction coefficient, (**Harrison, see Col. 13 line 23 - Col. 14 lines 1-41**).

Regarding Claim 9, the combination of Nishimura in view of Yoon, and further in view of Harrison disclose a CDMA receiving method according to claim 7, characterized in that

the channel estimation value correction step comprises the step of correcting a plurality of channel estimation values before and after the obtained timing on the basis of the reception power fluctuation (**Harrison, see Col. 14 lines 32-41**), and the step of outputting the channel estimation values after correction upon performing averaged weighting thereof, (**Harrison, see Col. 12 lines 39-48**)

Regarding Claim 10, the combination of Nishimura in view of Yoon, and further in view of Harrison disclose a CDMA receiving method according to claim 7, characterized by further comprising the path detection step of detecting path delays (**Nishimura, see Fig. 3, Searcher 1 & Selector 21**) associated with an individual channel and shared channel (**Yoon, see Para [0030-0032])** of the user from the radio reception output, (**Nishimura, see Fig. 3 Para [0047-0048]**)

the individual channel despreading step of outputting a signal corresponding to the individual channel of the user by performing despreading operation for the radio reception output on the basis of the path delay of the individual channel of the user, (**Nishimura, see Fig. 3, Despreader 22 & Para [0048]**)

the shared channel despreading step (**Yoon, see Fig. 4, 92**) of outputting a signal corresponding to the shared channel of the user by performing despreading operation

for the radio reception output on the basis of the path delay of the shared channel of the user. (**Yoon, see Para [0036] & Nishimura, see Fig. 3 Despreader 22 i.e., despread for DPDCH & Para [0048]**)

Regarding Claim 11, the combination of Nishimura in view of Yoon, and further in view of Harrison disclose a CDMA receiving method according to claim 10, characterized by further comprising the individual channel demodulation step of demodulating a Data portion of the individual channel of the user from the signal corresponding to the individual channel on the basis of the channel estimation value, (**Nishimura, see Fig. 3, 24 & Para [0048]**)

Regarding Claim 12, the combination of Nishimura in view of Yoon, and further in view of Harrison disclose A CDMA receiving method according to claim 11, characterized by further comprising

the individual channel path demodulation step, for each individual channel of the user, which comprises the individual channel despreading step, the channel estimation step, and the individual channel demodulation step, (**Nishimura, see Fig. 3 & Para [0047-0048]**)

the individual channel RAKE combining step (**Nishimura, see Fig. 3, Rake 25**) of outputting an individual channel demodulation result on the user which is obtained by RAKE combining demodulation outputs from the individual channel demodulation steps of the individual channel path demodulation steps, (**Nishimura, see Para [0048] & [0054]**)

the shared channel demodulation step, for each shared channel of the user, which comprises the shared channel despreading step, the channel estimation value correction step, and the shared channel demodulation step, (**Yoon, see Para [0030-0032] & Nishimura, see Fig. 3 & Para [0047-0048]**)

the shared channel RAKE combining step (**Nishimura, see Fig. 3, Rake 25**) of outputting a shared channel demodulation result on the user which is obtained by RAKE combining demodulation outputs from the shared channel demodulation steps of the shared channel path demodulation steps, (**Yoon, see Para [0030-0032] & Nishimura, see Fig. 3 & Para [0047-0048]**)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ADNAN BAIG whose telephone number is (571) 270-

7511. The examiner can normally be reached on Mon-Fri 7:30m-5:00pm eastern Every other Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ADNAN BAIG/
Examiner, Art Unit 2461

/Huy D Vu/

Supervisory Patent Examiner, Art Unit 2461